

CLAIMS

1. A refrigerant composition consisting essentially of a combination of a hydrofluorocarbon component consisting of a combination selected from the following mixtures:
 - (1) R134a and R125;
 - (2) R134a, R125 and R143a
 - (3) R125 and R143a
 - (4) R134a, R227ea and R125and a hydrocarbon component consisting essentially of a combination selected from the following mixtures:
 - (5) isopentane and butane
 - (6) isopentane, butane and isopentane
 - (7) butane and isobutane.
2. A composition as claimed in claim 1 consisting of a mixture of one of hydrofluorocarbon components (1) to (4) and one of hydrocarbon components (5) to (7).
3. A composition as claimed in claim 1 or 2 wherein the hydrocarbon is present in an amount of 0.6 to 4% and wherein the composition is non-flammable when completely in the vapour phase.
4. A composition as claimed in any preceding claim wherein the hydrocarbon is present in an amount of 0.6 to 4% and wherein when the composition is in a

container with both vapour and liquid present, neither vapour nor liquid phase is flammable.

5. A composition as claimed in any preceding claim wherein the hydrocarbon is present in an amount of 0.6 to 4% and wherein at any time during a leak from a vapour space in a container neither the liquid phase nor the vapour phase is flammable.
6. A composition as claimed in any preceding claim wherein the hydrocarbon is present in amount of 0.6 to 4% and wherein at any time during a leak from a liquid space in a container neither the liquid phase nor vapour phase is flammable.
7. A composition as claimed in any preceding claim wherein the hydrocarbon is present in an amount of 0.6 to 4% and wherein the proportion of hydrocarbon to hydrofluorocarbon in the vapour phase does not differ from the equivalent proportion in the liquid phase by more than 40% at equilibrium at 25°C.
8. A composition as claimed in claim 7 wherein the proportion does not differ by more than 30%.
9. A composition was claimed in claim 8 wherein the composition does not differ by more than 20%.
10. A composition as claimed in any preceding claim wherein the hydrocarbon is present in an amount of 0.6 to 4% and wherein the proportion of hydrocarbon to hydrofluorocarbon in the vapour phase does not differ from the formulated composition by more than 40% at equilibrium at 25°C.

11. A composition as claimed in claim 10 wherein the proportion does not differ by more than 30%.
12. A composition as claimed in claim 11 wherein the proportion does not differ by more than 20%.
13. A composition as claimed in any preceding claim wherein during a leak from the vapour space or liquid space a container, the proportion of hydrocarbon to hydrofluorocarbon in either of the vapour phase or liquid phase does not differ from the formulated composition by more than 40% at equilibrium at 25°C.
14. A composition as claimed in claim 13 wherein the proportion does not differ by more than 40%.
15. A composition as claimed in claim 14 wherein the proportion does not differ by more than 20%.
16. A composition as claimed in any preceding claim wherein the hydrocarbon component consists of a mixture of isopentane, butane and isobutene.
17. A composition as claimed in claim 16 wherein the amount of isopentane is 0.6 to 2%.
18. A composition as claimed in claim 17 wherein the amount of isopentane is 0.6 to 1%.

19. A composition as claimed in any of claims 16 to 18 wherein the amount of butane is 0.6 to 5%.
20. A composition as claimed in claim 19 wherein the amount of butane is 0.6 to 3%.
21. A composition as claimed in claim 20 wherein the amount of butane is 0.6 to 2%.
22. A composition was claimed in any of claims 16 to 21 wherein the amount of butane is 0.6 to 5%.
23. A composition as claimed in claim 22 wherein the amount of butane is 0.6 to 2%.
24. A composition as claimed in claim 23 wherein the amount of butane is 0.6 to 1%.
25. A composition was claimed in any of claims 1 to 15 wherein the hydrocarbon component consists of a mixture if isopentane and butane.
26. A composition as claimed in claim 25 wherein the amount of isopentane is 0.6 to 1%.
27. A composition as claimed in claims 25 or 26 wherein the amount of butane is 1.3 to 2.5%.

28. A composition as claimed in claim 27 wherein the amount of butane is about 1.4%.
29. A composition as claimed in any of claims 1 to 15 wherein the hydrocarbon component consists of butane and isobutane.
30. A composition as claimed in claim 29 wherein the amount of butane is 0.6 to 5%.
31. A composition as claimed in claim 29 or 30 wherein the amount of isobutane is 0.6 to 5%.
32. A refrigerant composition as claimed in any of claims 1-13 consisting essentially of:
- | | |
|------------|---------------|
| R134a | 93.1 to 81.5% |
| R125 | 5 – 15% |
| isopentane | 0.6 to 1% |
| butane | 1.3 to 2.5% |
33. A refrigerant composition as claimed in any of claims 1-13 consisting essentially of:
- | | |
|------------|------|
| R134a | 83% |
| R125 | 5% |
| isopentane | 0.6% |
| butane | 1.4% |
34. A refrigerant composition as claimed in any of claims 1-13 consisting essentially of:

R134a	93.2 to 80%
R125	5 to 15%
isopentane	0.6 to 1%
butane	0.6 to 3%
isobutane	0.6 to 1%

35. A refrigerant composition as claimed in any of claims 1-13 consisting essentially of:

R134a	93%
R125	5%
isopentane	0.6%
butane	0.8%
isobutane	0.6%

36. A refrigerant composition as claimed in any of claims 1-13 consisting essentially of:

R134a	53.2 to 39%
R125	45 to 55%
isopentane	0.6 to 1%
butane	0.63%
isobutane	0.62%

37. A refrigerant composition as claimed in any of claims 1-13 consisting essentially of:

R134a	47.5%
R125	50%
isopentane	0.6%
butane	1%

isobutane 0.9%

38. A refrigerant composition as claimed in any of claims 1-13 consisting essentially of:

R134a 10 to 30%

R125 80 to 40%

R143a 10 to 30%

isopentane 0.6 to 2%

butane 0.6 to 5%

isobutane 0.6 to 5%

39. A refrigerant composition as claimed in any of claims 1-13 consisting essentially of:

R134a 16.5%

R125 60%

R143a 21%

isopentane 0.6%

butane 0.9%

isobutane 1%

40. A refrigerant composition as claimed in any of claims 1-13 consisting essentially of:

R125 75 to 55%

R143a 25 to 45%

butane 0.6 to 5%

41. A refrigerant composition as claimed in any of claims 1-13 consisting essentially of:

R125 60.5%

R143a	37%
butane	1%
isobutane	1.5%

42. A refrigerant composition as claimed in any of claims 1-13 consisting essentially of:

R125	60.5%
R143a	37%
butane	0.9%
isobutane	1%
isopentane	0.6%

43. A refrigerant composition as claimed in any of claims 1-13 consisting essentially of:

R134a	58.2 to 36%
R227ea	35 to 50%
R125	5 to 8%
isopentane	0.6 to 2%
butane	0.6 to 2%
isobutane	0.6 to 2%

44. A refrigerant composition as claimed in any of claims 1-13 consisting essentially of:

R134a	51%
R227ea	41%
R125	6%
isopentane	0.6%
butane	0.8%
isobutane	0.6%